REMARKS/ARGUMENTS

Prior to entry of the present Amendment, claims 1, 3-6, 9, 11, 13, 15-18 and 20 were pending in the application, with claims 2, 7-8, 10, 12, 14 and 19 having previously been cancelled. In the present Amendment, claims 3, 5-6, 9, 13, 15-18 and 20 are amended, new independent claims 21-22 are added and claims 1 and 11 are cancelled without prejudice. No new matter is added.

Examiner's Interview

Applicants appreciate the Examiners' time and consideration during the Interview held on October 29, 2008. As discussed below in more detail, during the Interview, Applicants' representative and Examiners Miller and McAllister discussed proposed amended independent claims 1 and 11 and the cited prior art (U.S. Patent No. 6,471,136 ("Chatterjee"); U.S. Patent No. 5,261,415 ("Dussault") and PCT Patent Application Publication No. WO 99/48756 ("Mayer"; corresponding to U.S. Patent No. 6,551,184)). Agreement was not reached on the claims.

Rejected Claims

The Examiner rejected claims 1, 3-6, 9, 11, 13, 15-18 and 20 under 35 U.S.C. §103 as being unpatentable over Chatterjee in view of Dussault and further in view of Mayer. As mentioned above, claims 1 and 11 are cancelled, rendering the rejections moot with respect to these claims. Applicants respectfully request reconsideration of the rejections with respect to the remaining rejected claims and if applied to the new claims.

New Independent Claim 21

New independent claim 21 defines a method to regulate a circulating air and/or intake air portion (V_s, V_o) in a passenger compartment of a vehicle, the method including detecting a hazardous gas concentration of CO_2 in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm, sensing a temperature, generating a triggering signal (l_{CO2}) based on the detected hazardous gas concentration, compensating the triggering signal (l_{CO2}) based on the sensed temperature, supplying the temperature-compensated triggering signal

(l_{CO2}) to a control unit for the circulating air and/or intake air portion (V_s, V_o) in a passenger compartment, supplying a temperature signal (l_t) from a sensor for sensing the temperature to the control unit, with the control unit, regulating the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t), the control unit inducing the supply of the passenger compartment in an alternating manner with either exclusively circulating air or exclusively intake air as a function of exceeding or falling short of a hazardous gas concentration threshold value (CL), the hazardous gas concentration threshold value (CL) in the passenger compartment being selected at approximately 0.2% by volume CO_2.

Chatterjee discloses biosensors for monitoring air conditioning and refrigeration processes. The biosensor 10 includes a biocomponent element 20 carrying a bioagent 22 and a base sensor element 30. In operation, the biocomponent element 20 interacts with a particular analyte to be sensed and generates an input signal to the base sensor element 30. The base sensor element 30 generates an output signal 3 indicative of a preselected level or actual amount of analyte.

A controller 100 receives the output signal 3 from the base sensor element 3. The controller 100 processes the output signal 3 to determine the concentration of analyte and initiates an appropriate system response. Chatterjee generally discloses that the controller 100 may be connected to a sensor to monitor temperature or other conditions and may pass that information to a data recorder 130.

As discussed during the Interview, Chatterjee does not teach or suggest, among other things, a method including detecting a hazardous gas concentration of CO_2 in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm. Rather, Chatterjee discloses a biosensor 10 which may be used to detect CO_2. As also discussed during the Interview, Chatterjee does not teach or suggest generating a triggering signal (l_{CO2}) based on the detected hazardous gas concentration, compensating the triggering signal (l_{CO2}) based on the sensed temperature, and supplying the temperature-compensated triggering signal (l_{CO2}) to a control unit for the circulating air and/or intake air portion (V_s, V_o) in a passenger compartment. Chatterjee merely discloses that the controller 100 may be connected to a sensor to monitor

temperature and may pass that information to a data recorder 130. In Chatterjee, the output signal 3 from the base sensor element 30 is not temperature-compensated.

In addition, as discussed during the Interview, Chatterjee does not teach or suggest, with the control unit, regulating the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t). Rather, in Chatterjee, the controller 100 receives the output signal 3 from the base sensor element 30 and processes the output signal 3 to determine the concentration of analyte and initiates an appropriate system response. Again, Chatterjee merely discloses that the controller 100 may be connected to a sensor to monitor temperature and may pass that information to a data recorder 130.

For at least these independent reasons, Chatterjee does not teach or suggest the subject matter defined by new independent claim 21.

Dussault does not cure the deficiencies of Chatterjee. Dussault discloses a CO_2 mainstream capnography sensor providing an output representing the CO_2 concentration of each breath of a patient. The sensor includes a LED emitter 36 and a detector 38 for receiving IR signals. The LED emitter 36 emits in a significantly narrow band centered around 4.2 microns, and its spectral output does not react with other gases that may be present. Because of the detector's substantial thermal sensitivity, the temperature of the detector is controlled by a heater blanket 44. The blanket 44 heats the emitter 36 and detector 38 in the range of 38° C to 41 ° C.

Dussault does not teach or suggest, among other things, a method including detecting a hazardous gas concentration of CO_2 in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm. Rather, in Dussault, the LED emitter 36 only emits in a narrow band centered around 4.2 microns and not with a reference wavelength beyond that narrow band.

As discussed during the Interview, Dussault also does not teach or suggest generating a triggering signal (l_{CO2}) based on the detected hazardous gas concentration and compensating the triggering signal (l_{CO2}) based on the sensed temperature. Dussault discloses that the sensor is temperature-controlled due to its substantial thermal sensitivity and does not teach or suggest that the signal from the sensor is temperature-compensated.

In addition, as discussed during the Interview, Dussault does not teach or suggest, supplying the temperature-compensated triggering signal (l_{CO2}) to a control unit for the circulating air and/or intake air portion (V_s, V_o) in a passenger compartment, and, with the control unit, regulating the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t). Rather, Dussault merely discloses that the sensor provides an output representing the CO_2 concentration of each breath of a patient and does not teach or suggest regulating any operation based on a temperature-compensated signal from the sensor and based on a temperature signal.

For at least these independent reasons, Dussault also does not teach or suggest the subject matter defined by new independent claim 21.

Mayer does not cure the deficiencies of Chatterjee and/or of Dussault. Mayer discloses a method and device for air conditioning in vehicles. A CO_2 sensor 106 detects the content of CO_2 in the passenger cabin and provides an output signal to a controller 102. The controller 102 controls the percentage of circulated air in the air flow introduced into the passenger cabin. Mayer discloses that the temperature in the cabin is maintained between 22° C and 24° C.

As discussed during the Interview, Mayer does not teach or suggest, among other things, a method including detecting a hazardous gas concentration of CO_2 in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm. Rather, Mayer discloses a general CO_2 sensor 106 and does not teach or suggest detecting a hazardous gas concentration of CO_2 in the passenger compartment according to the principle of photometric gas measurement. As also discussed during the Interview, Mayer does not teach or suggest generating a triggering signal (l_{CO2}) based on the detected hazardous gas concentration, compensating the triggering signal (l_{CO2}) based on the sensed temperature, and supplying the temperature-compensated triggering signal (l_{CO2}) to a control unit for the circulating air and/or intake air portion (V_s, V_o) in a passenger compartment. Mayer merely discloses that the temperature in the cabin is maintained between 22° C and 24° C. In Mayer, the output signal from the CO_2 sensor 106 is not temperature-compensated.

In addition, as discussed during the Interview, Mayer does not teach or suggest, with the control unit, regulating the circulating air and/or intake air portion (V_s, V_o) in the passenger

compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t). Rather, in Mayer, the controller 102 controls the percentage of circulated air in the air flow introduced into the passenger cabin based on the output signal from the CO_2 sensor 106 and not based on any temperature signal. Again, Mayer merely discloses that the temperature in the cabin is maintained between 22° C and 24° C.

For at least these independent reasons, Mayer also does not teach or suggest the subject matter defined by new independent claim 21.

In view of the foregoing, Chatterjee, Dussault and Mayer, alone or in combination, do not teach or suggest the subject matter defined by independent claim 21. Accordingly, independent claim 21 is allowable. Dependent claims 3-6 and 9 depend from new independent claim 21 and are allowable for at least the same and other independent reasons.

New Independent Claim 22

New independent claim 22 defines a system for regulating a circulating air and/or intake air portion (V_s, V_o) in a passenger compartment of a motor vehicle, the system including a control unit for the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment, a temperature sensor for sensing a temperature, the temperature sensor generating a temperature signal (l_t), a CO_2 sensor for detecting hazardous gas concentrations in the passenger compartment, a CO_2 concentration in the passenger compartment being measured by the CO_2 sensor via a wavelength-specific weakening of electromagnetic radiation in the infrared range, the CO_2 sensor detecting the CO_2 concentration in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm, the CO_2 sensor generating a triggering signal (l_{CO2}), the triggering signal (l_{CO2}) being temperature-compensated based on the sensed temperature. Claim 22 specifies that the control unit regulates the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t), the control unit inducing the supply of the passenger compartment in an alternating manner with either exclusively circulating air or exclusively intake air as a function of exceeding or falling short of a hazardous gas concentration threshold value (CL), the hazardous gas concentration threshold value (CL) in the passenger compartment being selected at approximately 0.2% by volume CO_2.

As discussed during the Interview, Chatterjee does not teach or suggest, among other things, a system including a CO_2 sensor for detecting hazardous gas concentrations in the passenger compartment, a CO_2 concentration in the passenger compartment being measured by the CO_2 sensor via a wavelength-specific weakening of electromagnetic radiation in the infrared range, the CO_2 sensor detecting the CO_2 concentration in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm. Rather, Chatterjee discloses a biosensor 10 which may be used to detect CO_2. As also discussed during the Interview, Chatterjee does not teach or suggest the CO_2 sensor generating a triggering signal (l_{CO2}), the triggering signal (l_{CO2}) being temperature-compensated based on the sensed temperature. Chatterjee merely discloses that the controller 100 may be connected to a sensor to monitor temperature and may pass that information to a data recorder 130. In Chatterjee, the output signal 3 from the base sensor element 30 is not temperature-compensated.

In addition, as discussed during the Interview, Chatterjee does not teach or suggest that the control unit regulates the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t). Rather, in Chatterjee, the controller 100 receives the output signal 3 from the base sensor element 30 and processes the output signal 3 to determine the concentration of analyte and initiates an appropriate system response. Again, Chatterjee merely discloses that the controller 100 may be connected to a sensor to monitor temperature and may pass that information to a data recorder 130.

For at least these independent reasons, Chatterjee does not teach or suggest the subject matter defined by new independent claim 22.

Dussault does not cure the deficiencies of Chatterjee. Dussault does not teach or suggest, among other things, a system including a CO_2 sensor for detecting hazardous gas concentrations in the passenger compartment, a CO_2 concentration in the passenger compartment being measured by the CO_2 sensor via a wavelength-specific weakening of electromagnetic radiation in the infrared range, the CO_2 sensor detecting the CO_2 concentration in the passenger compartment according to the principle of photometric gas measurement at wavelengths of 4.2 μm and 4.3 μm and at a reference wavelength of between 3.8 μm and 4.0 μm. Rather, in Dussault, the LED

emitter 36 only emits in a narrow band centered around 4.2 microns and not with a reference wavelength beyond that narrow band.

As discussed during the Interview, Dussault also does not teach or suggest the CO_2 sensor generating a triggering signal (l_{CO2}), the triggering signal (l_{CO2}) being temperature-compensated based on the sensed temperature. Dussault discloses that the sensor is temperature-controlled due to its substantial thermal sensitivity and does not teach or suggest that the signal from the sensor is temperature-compensated.

In addition, as discussed during the Interview, Dussault does not teach or suggest that the control unit regulates the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t). Rather, Dussault merely discloses that the sensor provides an output representing the CO_2 concentration of each breath of a patient and does not teach or suggest regulating any operation based on a temperature-compensated signal from the sensor and based on a temperature signal.

For at least these independent reasons, Dussault also does not teach or suggest the subject matter defined by new independent claim 22.

Mayer does not cure the deficiencies of Chatterjee and/or of Dussault. As discussed during the Interview, Mayer does not teach or suggest, among other things, a system including a CO_2 sensor for detecting hazardous gas concentrations in the passenger compartment, a CO_2 concentration in the passenger compartment being measured by the CO_2 sensor via a wavelength-specific weakening of electromagnetic radiation in the infrared range, the CO_2 sensor detecting the CO_2 concentration in the passenger compartment according to the principle of photometric gas measurement. Rather, Mayer discloses a general CO_2 sensor 106 and does not teach or suggest detecting a hazardous gas concentration of CO_2 in the passenger compartment according to the principle of photometric gas measurement. As also discussed during the Interview, Mayer does not teach or suggest the CO_2 sensor generating a triggering signal (l_{CO2}), the triggering signal (l_{CO2}) being temperature-compensated based on the sensed temperature. Mayer merely discloses that the temperature in the cabin is maintained between 22° C and 24° C. In Mayer, the output signal from the CO_2 sensor 106 is not temperature-compensated.

In addition, as discussed during the Interview, Mayer does not teach or suggest that the control unit regulates the circulating air and/or intake air portion (V_s, V_o) in the passenger compartment based on the temperature-compensated triggering signal (l_{CO2}) and based on the temperature signal (l_t). Rather, in Mayer, the controller 102 controls the percentage of circulated air in the air flow introduced into the passenger cabin based on the output signal from the CO_2 sensor 106 and not based on any temperature signal. Again, Mayer merely discloses that the temperature in the cabin is maintained between 22° C and 24° C.

For at least these independent reasons, Mayer also does not teach or suggest the subject matter defined by new independent claim 22.

In view of the foregoing, Chatterjee, Dussault and Mayer, alone or in combination, do not teach or suggest the subject matter defined by independent claim 22. Accordingly, independent claim 22 is allowable. Dependent claims 13, 15-18 and 20 depend from new independent claim 22 and are allowable for at least the same and other independent reasons.

CONCLUSION

In view of the foregoing, Applicants respectfully request entry of the present Amendment and allowance of claims 3-6, 9, 13, 15-18 and 20-22.

The undersigned is available for telephone consultation during normal business hours at the below-identified telephone number.

Respectfully submitted,

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